intensity of its tone, but also its tone value may be varied by the means and the force setting it in vibration. These difficulties may be overcome by making a tuning-fork which will flare at the end of the tines, and be also weighted by this enlargement at the distal points of the prongs. Such a fork "is less productive of overtone, and by drawing the fork through the fingers, or through a small ring, from below upward, the pressure upon the inclined surfaces of the projections forces the tips of the tines together, and the release sets them in vibration with a definite initial excursion."

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### DERMAL CASTS OF THE MEMBRANA TYMPANI IN PHTHISIS.

DR. H. L. MORSE exhibited at the meeting of the Boston Society for Medical Improvement, Nov. 26, 1888, three casts of the membrana tympani (*Boston Med. and Surg. Journal*, Dec. 20, 1888). These casts consisted of the whole dermoid coat of the membrana, which had been removed entire from the ears of two phthisical patients. Dr. Morse had records of a number of other phthisical patients from whom he had removed similar casts of the membrana tympani. All of these patients had what might be termed well-marked physical signs of phthisis of a "rather low, mild form." In one of the cases the ear-disease antedated by three or four months the first symptoms of pulmonary disease.

DR. BLAKE, in the discussion which followed, said, these casts will form and slowly or rapidly separate, according to the rate of progress of the tuberculous disease; indeed, the implication of the ear seems to bear a definite relation in its rate of progress to that of the progress of the disease in the lung. This mode of progress of this form of aural disease, commensurate with that of the simultaneous lung-disease, Dr. Blake suggested, may be due to the reflex relationship between the lung and the ear.

DR. J. ORNE GREEN was inclined to regard the disease simply as "desquamative inflammation," but not in any way of a reflex nature, nor specific in the phthisical. The designation "desquamative" is not an arbitrary one, but one proven by microscopic examinations by Wendt, of Germany, and accepted by a number of other German authorities. Since Wendt's time, Dr. Green is not aware that any one has attempted any microscopic investigation of the subject.

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### THE PATHOLOGY AND PATHOGENY OF OTITIS MEDIA SCLEROTICA.

DR. JOSEPH GRADENIGO, of the University of Padua, has investigated this most interesting and important subject, and communicates his results in the *Annales des maladies de l'oreille*, etc., Dec. 1888. He first gives the notes of the post-mortem examination in two cases of sclerosis of the middle ear. The lesions in these cases do not permit a formulation of a positive opinion upon the morbid process which produced them. The morbid changes are characterized by thinning of the mucous membrane, its fibrillar structure, and paucity of bloodvesels. But it cannot be positively decided yet whether these changes are primary or secondary. The absence of perivascular changes, thickening of the *tunica adventitia*, and the non-participation of the epithelium in the morbid process, argue against the latter hypothesis in the cases reported.

From the observations he has made, Gradenigo concludes that the bands and membranes found in the tympanic cavity in otitis sclerotica must not be regarded as neoplasms, but simply as remnants of the embryonal gelatinous tissue. Because it is in the partial persistence of just such a tissue that we should look for an important pathogenetic factor. It is also necessary to establish a sharp distinction between the different forms of adhesive processes in the ear, viz., between those secondary to otitis media purulenta and perhaps some forms of acute catarrh, and the adhesive processes secondary to otitis sclerotica and chronic aural catarrh in general. This, however, is not easy to do.

Synechiæ and adhesions occur only in the first form named above. In the various forms, however, of so-called dry catarrhal otitis, such formations cannot be due to inflammatory processes, as the latter cannot be found to have occurred at any time in their course.

Gradenigo does not admit the statement so widely made in the literature of this subject, that the tympanic cavity of the human fœtus is entirely filled with a mass of gelatinous tissue, since he has found a true tympanic cavity in the human embryo when only 4-4.5 centimetres long. Further researches confirmed the opinion that absorption of this gelatinous tissue is not directly connected with respiration. It is generally rapidly completed near the time of birth. Such absorption is due to some determining power of embryonal development. In guinea-pigs the gelatinous tissue is absorbed before birth; in cats, after birth, as a rule. The microscopic structure of the bands and membranes found in sclerosis of the middle ear shows it to be formed from remnants of this gelatinous tissue of embryonal life. "Since observations upon guinea-pigs and cats demonstrate that the absorption of this gelatinous tissue is an autogenetic process—that is, it is intimately connected with peculiarities of development of the animal—it is easy to perceive how heredity represents one of the most important factors in the etiology of *otitis sclerotica*." "It must be admitted that in a family all the children can have a persistence of this gelatinous tissue in the drum-cavity at birth, and hence there can be established in them a grave predisposition to sclerosis." The morphological element must not be disregarded in the pathogenesis of *otitis sclerotica*.

This paper is of the greatest interest and importance to all otologists, and deserves a careful reading.

## TREATMENT IN CASES WHERE SYMPTOMS POINT TO INFLAMMATION IN THE MASTOID ANTRUM AND MASTOID CELLS, BUT WHICH DO NOT CALL FOR AN ARTIFICIAL OPENING IN THE MASTOID PROCESS.

Under this title DR. HENRY L. MORSE has presented a most valuable paper on an important subject before the Boston Society for Medical Improvement (*Boston Med. and Surg. Journal*, Dec. 20, 1888). The method may be thus recapitulated:

In acute inflammation of the intra-mastoid region with imperforate membrana tympani the order of procedure is paracentesis, inflation by Politzer's method or by the Eustachian catheter, and hot or cold applications *behind* the ear. Heat may thus be applied by means of a kidney-shaped salt-bag seven inches long, and cold may be applied by means of ice wrapped in